

WHAT IS CLAIMED IS:

1. A facsimile apparatus for facsimile communications over an IP network, comprising:

a network interface that connects to the IP network via a LAN or a public line;

a TCP/UDP/IP protocol control unit that is connected to the network interface and controls an IP protocol and a TCP/UDP protocol;

a real-time transfer protocol control unit that is connected to the TCP/UDP/IP protocol control unit and controls a real-time transfer protocol;

a voice encoding/decoding unit that is connected to the real-time transfer protocol control unit and encodes and decodes a voice signal;

a facsimile modem that is connected to the voice encoding/decoding unit and modulates and demodulates a facsimile signal;

a first T30 protocol control unit that is connected to the facsimile modem and controls a T.30 facsimile protocol;

a first communication image processing unit that is connected to the first T30 protocol control unit and conducts image processing of communication image data; and

an image storage unit that is connected to the communication image processing unit and stores a read image or image data received from a network; wherein:
real-time facsimile communications of a virtual voice-mode are conducted with a conventional facsimile apparatus via the IP network.

2. The facsimile apparatus according to Claim 1, further comprising:

a T38 protocol control unit that is connected to the TCP/UDP/IP protocol control unit and controls a T.38 protocol;

a second T30 protocol control unit that is connected to the T38 protocol control unit and controls a T.30 facsimile protocol;

a second communication image processing unit that is connected between the second T30 protocol control unit and the image storage unit and conducts image

processing of communication image data; and

a communication unit selecting unit that selects either of a first communication unit comprising the TCP/UDP/IP protocol control unit, the real-time transfer protocol control unit, the voice encoding/decoding unit, the facsimile modem, the first T30 protocol control unit and the communication image processing unit, or a second communication unit comprising the TCP/UDP/IP protocol control unit, the T38 protocol control unit, the second T30 protocol control unit and the second communication image processing unit, wherein:

a conventional facsimile apparatus and the first communication unit are used to conduct the real-time facsimile communications, and a facsimile apparatus for T.38 and the second communication unit are used to conduct the real-time facsimile communications.

3. The facsimile apparatus according to Claim 2, wherein:

the first T30 protocol control unit and the second T30 protocol control unit are configured by a shared protocol control unit, and

a switching unit is provided to selectively switch a connection of the shared protocol control unit with the facsimile modem or with the T38 protocol control unit.

4. The facsimile apparatus according to Claim 2, further comprising:

a selective call control unit that first selects the first communication unit and call a destination terminal to judge whether the destination terminal has T.38 mode communication capability, and when the destination terminal has the T.38 mode communication capability, temporarily suspends the session and selects the second communication unit to call the destination terminal.

5. The facsimile apparatus according to Claim 4, wherein it is judged whether the destination terminal has the T.38 mode communication capability in a stage of establishment of a session in response to the first call by the first communication unit.

6. The facsimile apparatus according to Claim 4, wherein it is judged whether the destination terminal has the T.38 mode communication capability in a stage shifted to a facsimile protocol after the establishment of a session according to the first call by the first communication unit.
7. The facsimile apparatus according to Claim 1, further comprising:

 - a network control unit that controls a connection to a public line;
 - a public line facsimile modem that is connected to the network control unit and modulates and demodulates a facsimile signal;
 - a public line facsimile protocol control unit that is connected to the public line facsimile modem and controls the T.30 facsimile protocol;
 - a public line communication image processing unit that is connected between the public line facsimile protocol control unit and the image storage unit and conducts image processing of communication image data; and
 - a communication unit selecting unit that selects either of the first communication unit comprising the TCP/UDP/IP protocol control unit, the real-time transfer protocol control unit, the voice encoding/decoding unit, the facsimile modem, the first T30 protocol control unit and the communication image processing unit, or the second communication unit comprising the network control unit, the public line facsimile modem, the public line facsimile protocol control unit and the public line communication image processing unit, wherein:

 - a facsimile apparatus connected to the IP network and the first communication unit are used to conduct communications, and a facsimile apparatus connected to the public line and the second communication unit are used to conduct communications.
8. The facsimile apparatus according to Claim 7, wherein:

 - the facsimile modem and the public line facsimile modem are configured by a

shared facsimile modem, and

a switching unit is provided to selectively switch a connection of the shared facsimile modem with the voice encoding/decoding unit or with the network control unit.

9. The facsimile apparatus according to Claim 7, further comprising:

a destination terminal number input unit for inputting a destination terminal number;

an IP network terminal identification number storage unit that stores identification numbers used to identify IP network terminals; and

a selective call control unit that compares an input number with the identification numbers stored in the IP network terminal identification number storage unit when the destination terminal number is input to judge whether the destination terminal is an IP network terminal, and when the destination terminal is the IP network terminal, selects the first communication unit to call the destination terminal, and when the destination terminal is not the IP network terminal, selects the second communication unit to call the destination.

10. A facsimile apparatus for facsimile communications over an IP network, comprising:

a network interface that connects to the IP network over a LAN or a public line;

a TCP/UDP/IP protocol control unit that is connected to the network interface and controls an IP protocol and a TCP/UDP protocol;

a real-time transfer protocol control unit that is connected to the TCP/UDP/IP protocol control unit and controls a real-time transfer protocol;

a voice encoding/decoding unit that is connected to the real-time transfer protocol control unit and encodes and decodes a voice signal;

a facsimile modem that is connected to the voice encoding/decoding unit and modulates and demodulates a facsimile signal;

a facsimile protocol control unit that is connected to the facsimile modem and controls a T.30 facsimile protocol;

a communication image processing unit that is connected to the facsimile protocol control unit and conducts image processing of communication image data; and

an image storage unit that is connected to the communication image processing unit and stores a read image or image data received from a network; wherein:

real-time facsimile communications of a virtual voice mode are conducted with a conventional facsimile apparatus connected to the IP network over a VoIP gateway.

11. The facsimile apparatus according to Claim 3, wherein the first communication image processing unit and the second communication image processing unit are configured by a shared communication image processing unit.
12. The facsimile apparatus according to Claim 8, wherein the first T30 protocol control unit and the public line facsimile protocol control unit are configured by a shared protocol control unit, and the first communication image processing unit and the public line communication image processing unit are configured by a shared communication image processing unit.